

Remarks

Claims 1 through 36 are in the case. Claim 1 is amended by this amendment.

It is the combination of US 4,795,002 to Burgei and DE 39 04 460 that is said to anticipate present claim 1. However, it is our view that a person of ordinary skill would not be drawn to make that combination because each document teaches away from the other and the teaching is therefore not compatible for combination.

Apart from the argument presented below, we also propose to slightly amend claim 1 as shown on page 2 of this amendment. None of the other claims require amendment.

US 4,795,002 – BURGEI

Burgei discloses a complex arrangement comprising:

- (i) drive and driven members 14 and 16;
- (ii) a drive pinion 26 that meshes with teeth 34 formed on the edge 30 of the driven member 16;
- (iii) a pair of cables 1 and 3, which are fixedly mounted to the members 14 and 16.

When a motor 20 drives the pinion 26, each of the members 14 and 16 rotate in opposite directions about the pivot pin 12 to tension the cables 1 and 3. Rotation of the pinion 26 by the motor 20 in the reverse direction causes the members 14 and 16 to rotate in a return direction to relax the cables 1 and 3. The teaching of Burgei is to completely relax or slacken the cables 1 and 3, given that the cables 1 and 3 are straightened in the Figure 4 brakes applied position and are curved in the Figure 3 brakes released position.

As the Examiner recognizes, Burgei does not disclose a continuous cable, but the Examiner has identified a continuous cable in DE 39 04 460. However, despite DE 39 40 460 disclosing a pair of continuous cables, it does not appear to be possible that Burgei could be arranged to use a continuous cable based on the combination with the disclosure of DE 39 04 460 (“DE 460”).

DE 39 04 460

DE 460 discloses in Figures 2 and 3 (the figures relied on by the Examiner) a device 60 which rotates when the cable 38, 42 is pulled. The device 60 of DE 460 comprises a pair of cable guides 62 and 64, one of which (guide 62) is driven through the cable 38, 40 to drive the other guide 64 for displacing the cable 18, 20. The pair of cable guides are connected together and importantly, the device 60 is rotatable about a virtual axis of rotation that shifts or floats. That is, there is no fixed axis about which the device 60 rotates relative to the drive arrangement, so the device floats between the respective positions shown in Figures 2 and 3. This is apparent, because one end of the cable 38, 42 is fixed or grounded and therefore rotation of the device 60 must result in the device 60 shifting in a manner other than about a fixed pivot. A fixed pivot could only be provided, if there was a displacement applied to each of the cable sections 38 and 40 in equal and opposite directions. Instead only the cable section 38 is pulled (upwards when viewed in Figures 2 and 3), while the cable section 42 remains grounded at all times.

This is an extremely important consideration for the combination of Burgei and DE 460, because Burgei requires a fixed pivot about which the members 14 and 16 rotate. The fixed pivot is provided in Burgei by pivot pin 12 and that pin 12 is said to be “fixed to the underneath of a rigid body member M” (see column 3, lines 14 and 15). There is no teaching or contemplation in Burgei that the pivot can be anything other than fixed and it is not possible to discern an obvious arrangement in which the pivot pin 12 of Burgei could either be made to float, or that the pivot pin could be removed and members 14 and 16 be supported in a floating manner.

Thus, the manner in which the members 14 and 16 of Burgei rotate, and the manner in which the device 60 rotates, fundamentally is different, the first requiring a fixed pivot and the second

requiring a floating or shifting pivot, or in fact a virtual pivot. It follows, that to adopt the continuous cable arrangement of DE 460 into Burgei, the person of ordinary skill would need to devise a way in which the floating pivot arrangement of DE 460 could be employed in the fixed pivot arrangement of Burgei. This is not something that could be considered an obvious thing to do.

A further impediment to the adoption of the continuous cable arrangement of DE 460 in the arrangement of Burgei, is that DE 460 teaches and requires the application of a pair of cables each of which coacts with the device 60, but neither of which is fixed to or anchored to the device 60. The pair of cables of DE 460 is necessary because the device 60 is not otherwise fixed in place, due to the requirement discussed above that the device 60 is a floating device, or put differently, rotates about a virtual pivot. In each of the positions shown in Figures 2 and 3, the respective cables 18, 20 and 38, 40 are balanced and maintain the device 60 in place. For this, clearly there is a requirement for a certain tension force to remain in each of the cables, or the device will collapse. This is in contrast to Burgei, in which the cables 1 and 3 have one end fixed to a respective member 14 or 16, and the other end connected to a brake assembly. Moreover, in Burgei, the cables 1 and 3 are relaxed between brake applications. Thus, while Burgei appears to be able to tolerate cable slack, DE 460 cannot. This is because DE 460 will vibrate uncontrollably if slack exists, or it will simply collapse if there is sufficient slack for the cables 18 and 20 to be released from the device 60. It is to be noted, that slack in only one of the pair of cables of DE 460 will be sufficient for the device 60 to fail in the above manner.

It will be appreciated from the above comments, that the teaching of Burgei in relation to its cable arrangement is very different to that of DE 460. Each requires two separate cables but the manner of their use is very different. The teaching of Burgei is to fix the ends of the cables 1 and 3 to the separate members 14 and 16, but in a manner that the cables 1 and 3 have no effect or role in the way in which the members 14 and 16 are fixed in place. That role in Burgei is taken by the pivot pin 12 and by the pinion 26 in its separate engagement firstly with the member 14 and secondly with its meshing engagement with the edge 30 of the member 16.

In contrast in DE 460, the cables play a critical role in positioning the device 60, and it is the cable arrangement that permits the device 60 to float as required. DE 460 includes a pair of cables each of which extends through the device 60 rather than being connected to it and each of which has to be carefully arranged for positioning of the device 60. Moreover, one end of one of the cables (the cable 38, 42) is anchored remotely neither to a brake assembly or to the device 60, again in stark contrast to the arrangement and teaching of Burgei.

The continuous cable in DE 460 works by maintaining tension in each of the cables 18, 20 and 38, 42, and by permitting floating movement of the entire device 60 when the cable 38 is displaced. In Burgei, tension in the cables 1 and 3 is not maintained and pivoting occurs about the fixed pivot 12. These two fundamental operating characteristics cannot be reconciled together to create a single actuator having each of the characteristics of present claim 1.

It is therefore apparent that there would be significant and in our view insurmountable difficulties in adapting the teaching of DE 460 into Burgei.

Accordingly, a person of ordinary skill would not look to DE 460 to provide the elements missing from Burgei because of the fundamental difference in the operation of DE 460 compared to Burgei.

The amendment proposed to claim 1 is intended to confirm the relationship in the present invention between the drive means and the rotatable member, that they have a relationship in which the rotatable member can rotate relative to the drive means about an axis which is fixed relative to the drive means. It is acceptable that the rotatable member and the drive means shift in concert, and this is provided for in claim 18 and related claims, but it is not intended that the rotatable member be able to shift relative to the drive means. In DE 460, if the drive means is the cable 38, 42, then the device 60 rotates about a shifting or floating axis relative to the cable. If the drive means is the cable guide 62, then there is no rotation relative to the cable guide 64 (which would have to equate to the rotatable member of claim 1). Therefore in either case, the requirement of claim 1 is not met.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Michael H. Minns", with a long horizontal flourish extending to the right.

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